

What Are Effective Interventions for People with Low Health Literacy?

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NC IOM Health Literacy Task Force
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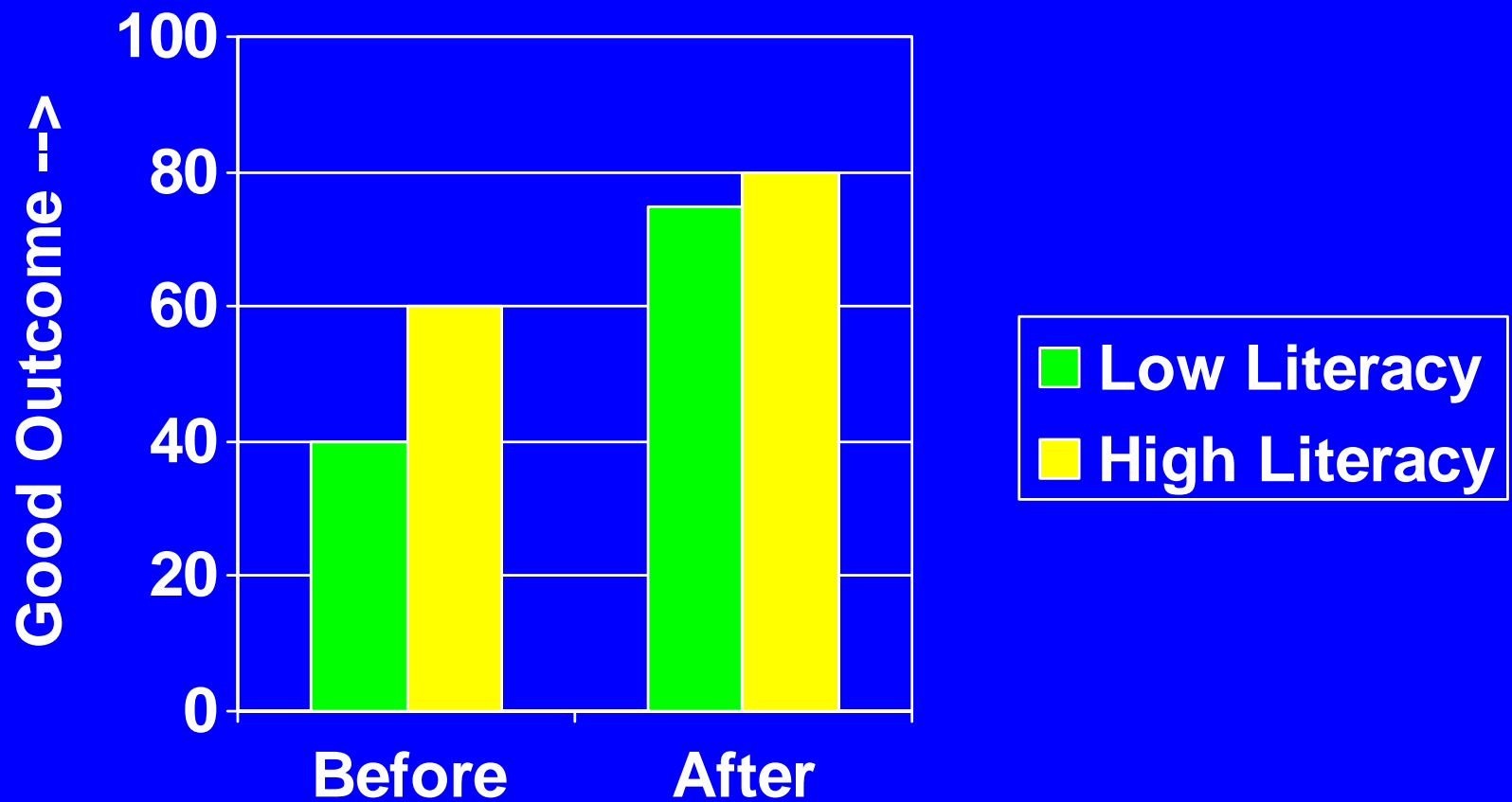
Research Evidence for Interventions

- Educational media
- Verbal communication strategies
- Reorganizing care systems

The Optimal Study

- Compare an intervention to control
- Measure literacy and include people of all literacy levels
- Stratify results by literacy level
- Successful intervention would improve outcome in both low and high literacy individuals and even narrow the disparity in outcome

Ideal Intervention Effect



Interventions to Improve Health Outcomes in Persons with Low Literacy

- 20 studies examined the effect of interventions designed to mitigate the adverse impact of literacy on health outcomes
- Mixture of randomized trials and single group, uncontrolled experiments with pre- and post-intervention measurements for a range of health outcomes
- Few studies examined the interaction b/w literacy and the intervention

Intervention Studies: Positive Findings

- Quitting smoking during pregnancy
- Arthritis knowledge, behavior, and function
- Blood pressure
- Self-care ability
- Mammography rates
- Dietary behavior*
- Comprehension of health information*

* mixed findings

Intervention Studies: Negative Findings

- Cholesterol and blood pressure levels
- Colorectal cancer screening rates
- Sleep apnea knowledge
- Comprehension of educational materials*
- Dietary outcomes*

* - mixed findings

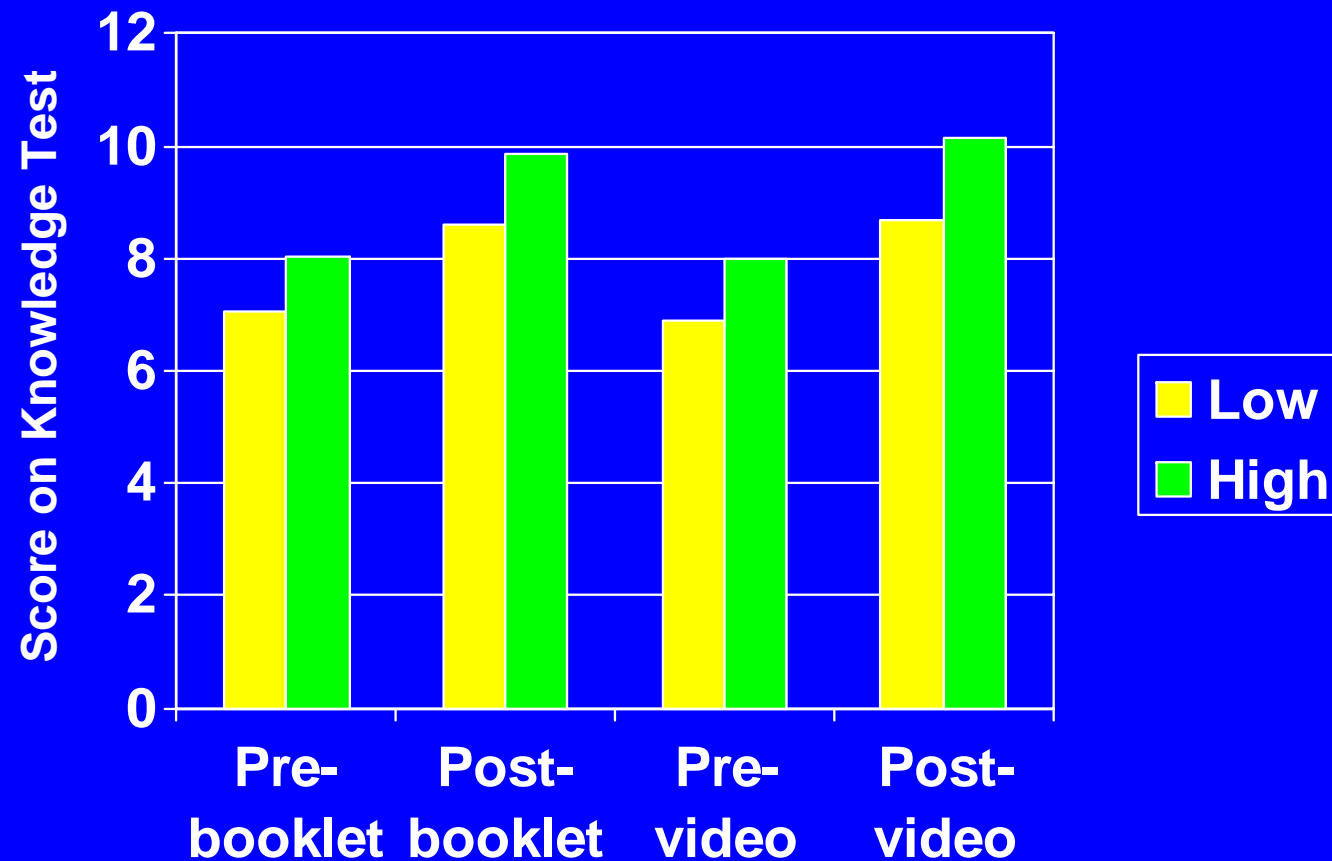
Exemplary Intervention Studies

- 5 controlled trials that measured literacy and stratified outcomes by literacy status
- Outcomes assessed: sleep apnea knowledge, cervical cancer knowledge, reported self-care ability, comprehension (polio vaccine), colon cancer knowledge/ interest
- No studies reporting actual health outcomes

Meade and colleagues

- Randomized trial comparing pamphlet, video or nothing regarding colon cancer screening
- Knowledge improved equally with pamphlet and video, but not in control
- Stratified analysis by literacy
 - Knowledge improved in both groups

Meade and Colleagues Results

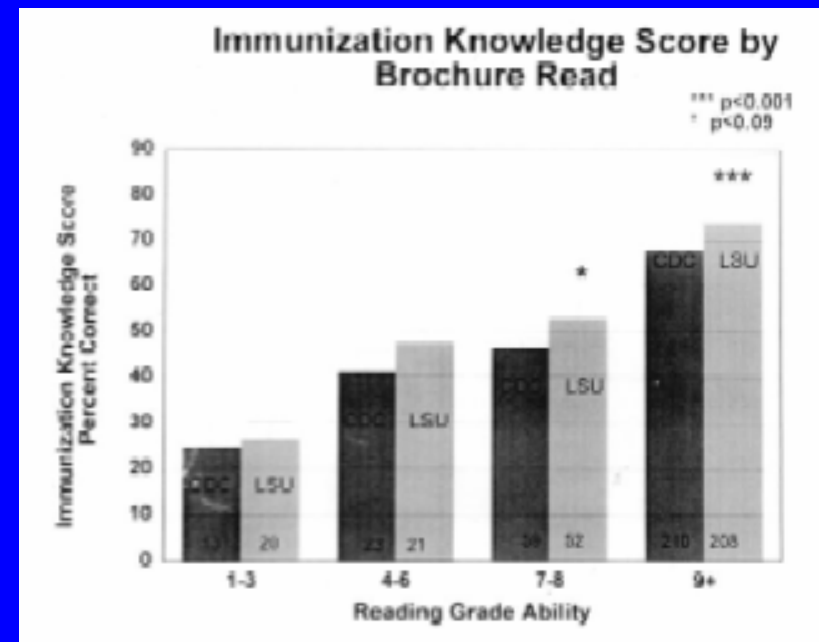


Meade and colleagues cont'd

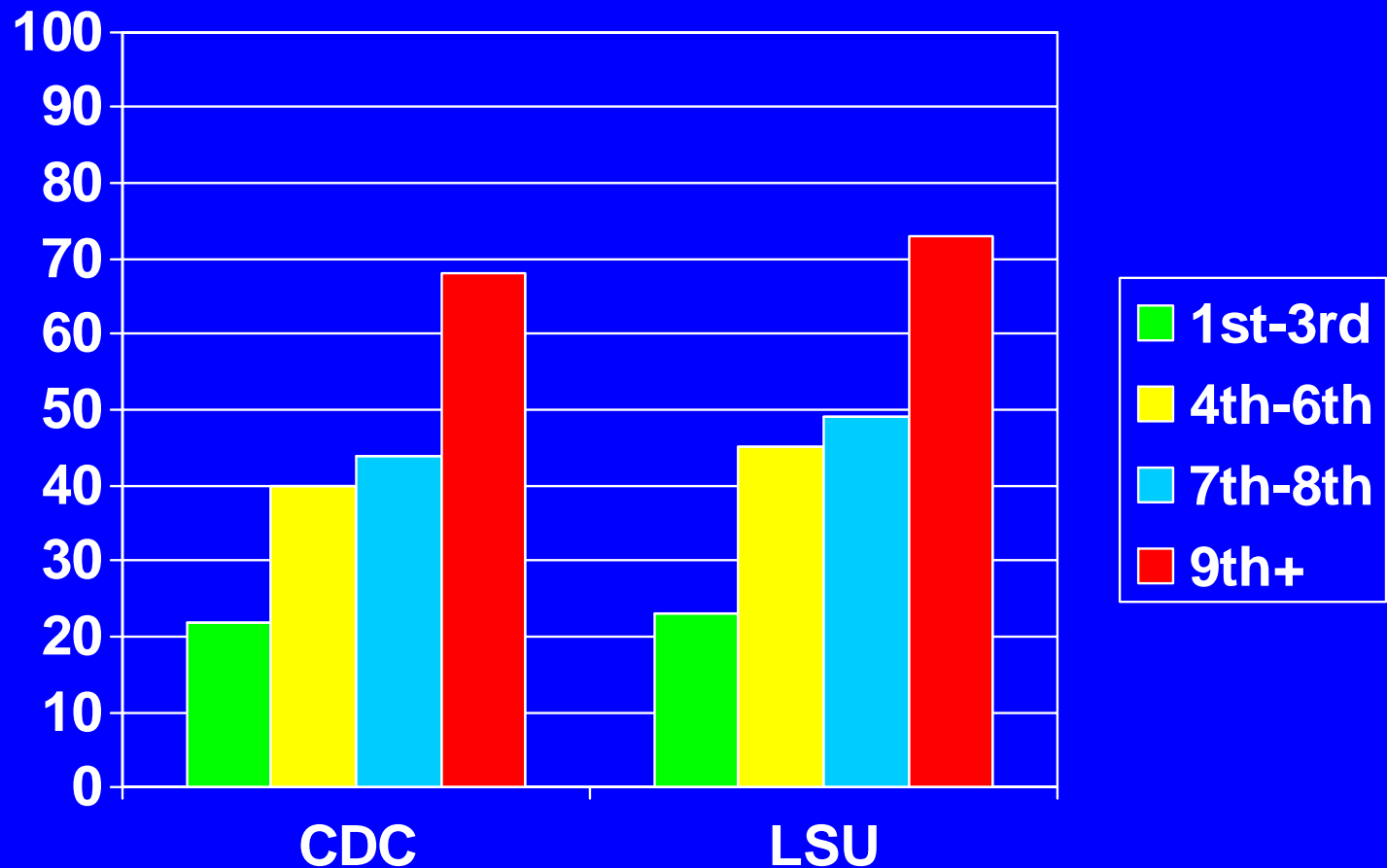
- What wasn't published?
 - No difference between the intervention and control groups for getting colon cancer screening
- Does knowledge alone matter?

Polio Immunization Knowledge

- LSU immunization brochure better than CDC brochure
- Difference between reading levels much greater than difference from improved brochure



Davis' Data Rearranged



Summary of Systematic Review

- Interventions to make health care materials easier to understand have had mostly positive effects on knowledge in populations with low literacy
- Improvement in actual health outcomes or narrowing disparities not demonstrated
- Substantial room for improvement in quality of studies
- Following guides like the principles of clear health communication can improve transmission of knowledge

Editorial Comment

- Insanity: production of educational materials that are not easily understood by the vast majority of the audience
- The only way to examine understandability is to ASK the audience
- Educational materials alone will not solve the problem

Important Studies not Included in Systematic Review

- Pictures
- Teach-back method
- Literacy training programs
- Planned Care Interventions

Pictures

- Improve comprehension
- Improve recall
- Improve adherence
- Pictures needn't be fancy, and should be concrete
- May be more beneficial for people with low literacy

What about the clinical encounter?

Improving Verbal Communication

- Avoid jargon
- Use visuals (educational media should enhance, not replace, direct communication)
- Limit the number of recommendations
- Use the teach-back method

Teach-Back

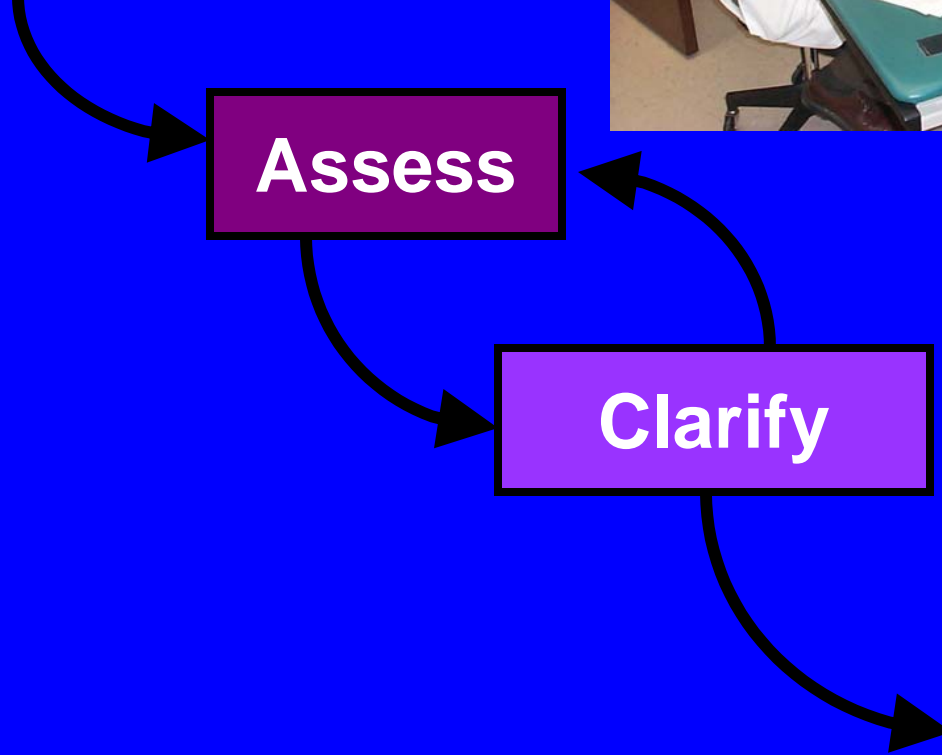


Explain

Assess

Clarify

Understanding



'Teach-Back' for Patients with Diabetes

Audio taped visits – 74 patients, 38 physicians

- Patients recalled < 50% of new concepts
- Physicians assessed recall 13% of time
- When physicians used “teach-back” the patient was 9x more likely to have HbA1c levels below the mean
- Visits that assessed recall were not longer

Role of Adult Education

Weiss et al 2006: Literacy education as adjunct treatment for depression

- Small randomized trial of 70 patients who tested positive for depression on PHQ-9 and had low literacy on REALM
- Both groups received depression care
- Intervention group received adult education
 - Mean of 18 hours of instruction
- At 1 year, median depression scores were lower for the intervention group (6 vs. 10)

Randomized trial of teaching self-management for heart failure

DeWalt, Malone, Bryant et al. BMC Health Services Research 2006; 6: 30

Heart Failure Epidemiology

- 4.8 million people in U.S. have heart failure
- Leading cause of hospitalization among elderly
- 25% to 50% are re-admitted within 3-6 months
- Half of all heart failure admissions are preventable
- 13% of Medicare enrollees → 37% of expenditures
- Patients with low literacy at increased risk

Intervention

- 1-hour individualized education session
- Education booklet <6th grade level
- Digital bathroom scale
- Scheduled follow-up phone calls
- Facilitated access

Information Recommended by Guidelines

- General topics
- Explanation of heart failure
- Expected symptoms vs. symptoms of worsening heart failure
- Psychological responses
- Self-monitoring with daily weights
- Action plan in case of increased symptoms
- Prognosis
- Advanced directives
- Dietary recommendations
- Sodium restriction
- Fluid restriction
- Alcohol restriction
- Activity and exercise
- Work and leisure activities
- Exercise program
- Sexual activity
- Medications
- Nature of each drug and dosing and side effects
- Coping with a complicated regimen
- Compliance strategies
- Cost issues

Information We Included

- *General topics*
- Explanation of heart failure
- Expected symptoms vs. symptoms of worsening heart failure
- *Psychological responses*
- Self-monitoring with daily weights
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<http://www.shareddecisionmaking.org>

How Bad Is Your Congestive Heart Failure?

You can tell how well your heart is doing by how you feel and what you can do.

SWELLING

Good – No Swelling



OK – Swelling in Ankle or Shin



Bad – Swelling in Knee Area



Call the UNC Clinic / 919-843-6480 ☎

WALKING

Good – You can walk easily with no shortness of breath



OK – Shortness of breath when walking fast



Bad – Short of breath at rest



Call the UNC Clinic / 919-843-6480 ☎

SLEEPING

Good – Sleeping flat, no shortness of breath



OK – Needing 2 pillows or more to avoid shortness of breath



Bad – Have to sleep upright to avoid shortness of breath



Call the UNC Clinic / 919-843-6480 ☎ 3

Baseline Characteristics

Variable	Control (n=65)	Intervention (n=64)
Mean Age, years (SD)	62 (10)	63 (10)
African American, %	55%	56%
Male, %	42%	58%
Education, years	9.8 + 2.8	9.1 + 3.2
Income <15,000/yr, %	68%	69%
Medicaid, %	32%	36%
Medicare, %	73%	72%
Literacy (S-TOFHLA) Inadequate, %	40%	45%

Improved HF Knowledge, Self-Efficacy, and Self-Care Behavior

6 Month Outcome	Control	Intervention	Difference (CI)	P value
Knowledge change	-2	10	12 (4, 19)	<0.01
Self-efficacy change	-0.5	1.3	2 (0.5, 3.1)	<0.01
Daily weight measurement, %	21	88	67 (53, 81)	<0.01

Reduced Hospital Admission or Death Incidence Rate Overall

- Unadjusted Incidence Rate Ratio (IRR)
0.66 [0.38, 1.12]
- Adjusted* IRR
0.56 [0.32, 0.95]

*Adjusted for baseline HFQOL, B-blocker use, digoxin use, systolic dysfunction, HTN

Inadequate Literacy Sub-Group: Lower Admission Incidence Rate

- Unadjusted Incidence Rate Ratio (IRR)
0.69 [0.28, 1.75]
- Adjusted* IRR
0.38 [0.16, 0.88]

*Adjusted for baseline HFQOL, B-blocker use, ACEI/ARB use, & hypertension

Heart Failure Program Conclusions

- HF self-care program improves knowledge, self-efficacy, and self-care behavior
- HF self-care program appears to decrease the rate of hospitalization or death, perhaps more so for patients with low literacy skills

Diabetes Planned Care

- Database
- Pharmacist-led
- Patient education
- Care coordination
- Phone follow-up
- Use of treatment and monitoring algorithms
- Integrated into primary care

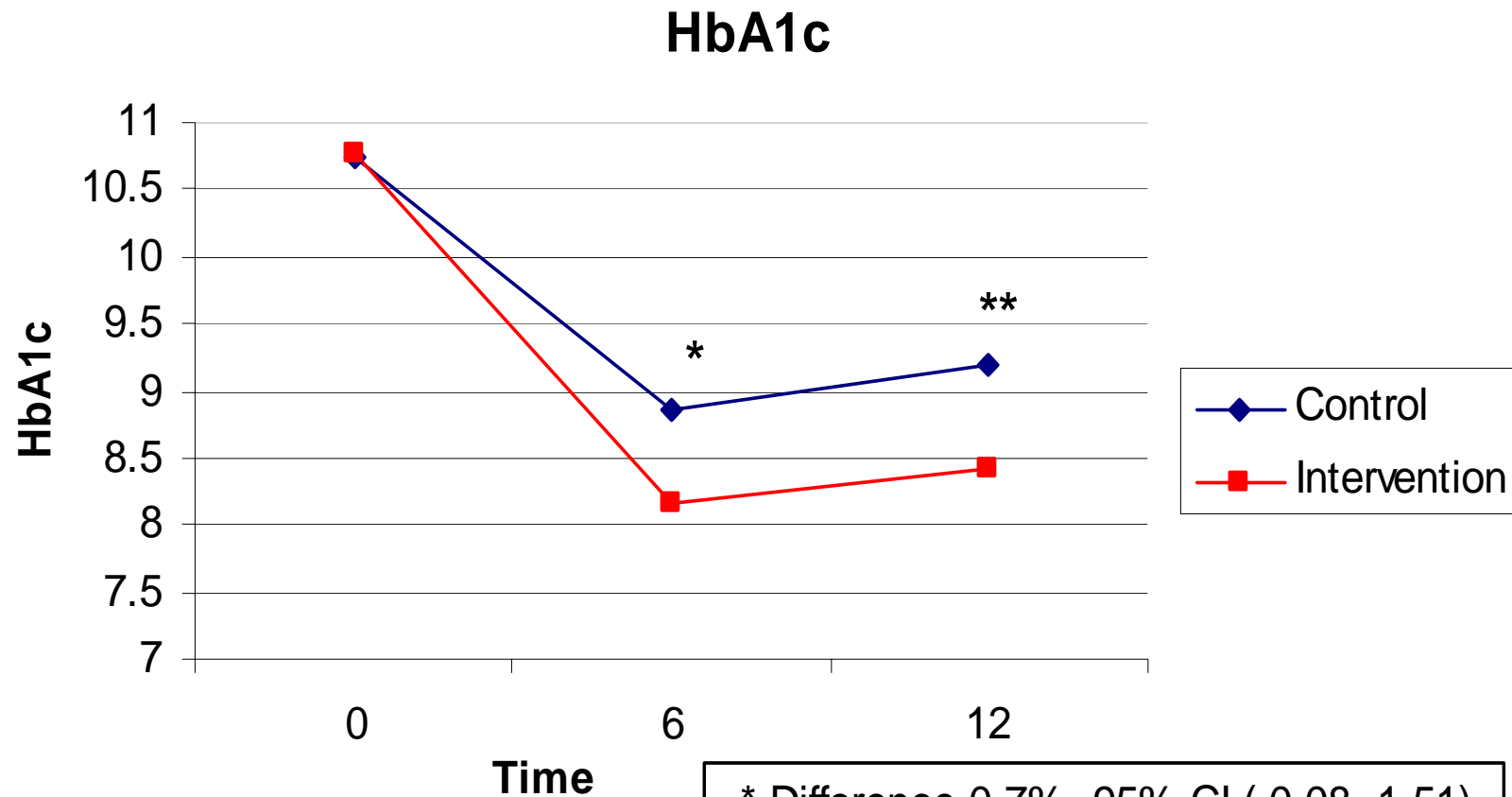


Rothman, Malone, Bryant et al. *Am J Med.* 2005;118:276-284.

Evaluation

- Design
 - Randomized controlled trial of intensive disease management versus one-time session and usual care
 - One year duration
- Setting: UNC general internal medicine practice
- Population : Poor glucose control (HbA1c \geq 8%)

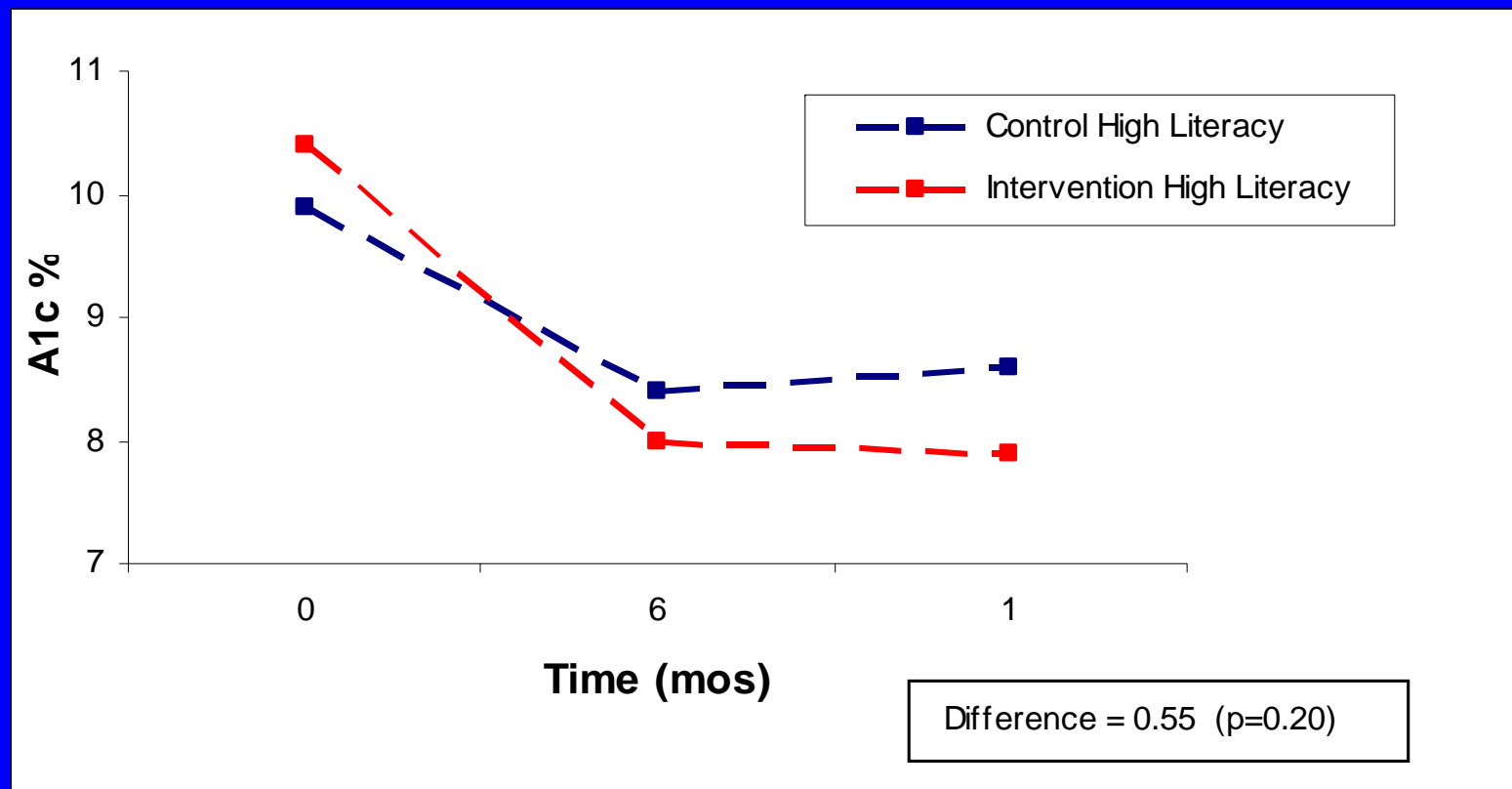
Improvement in HbA1c



* Difference 0.7%, 95% CI (-0.08, 1.51)
** Difference 0.8%, 95% CI (-0.09, 1.73)

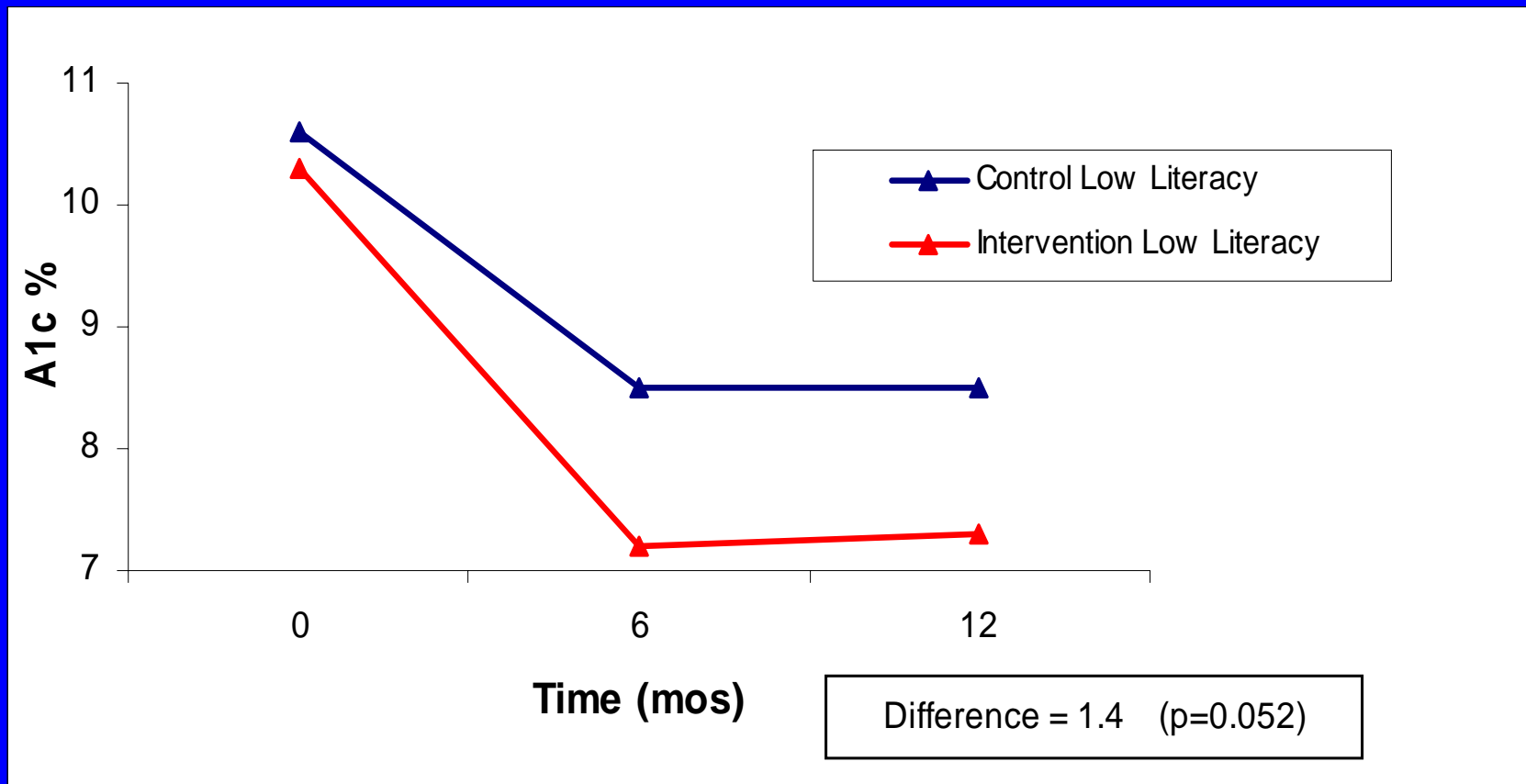
Results According to Literacy Status

Diabetes Control: Results for Patients with Literacy Above 6th Grade Level



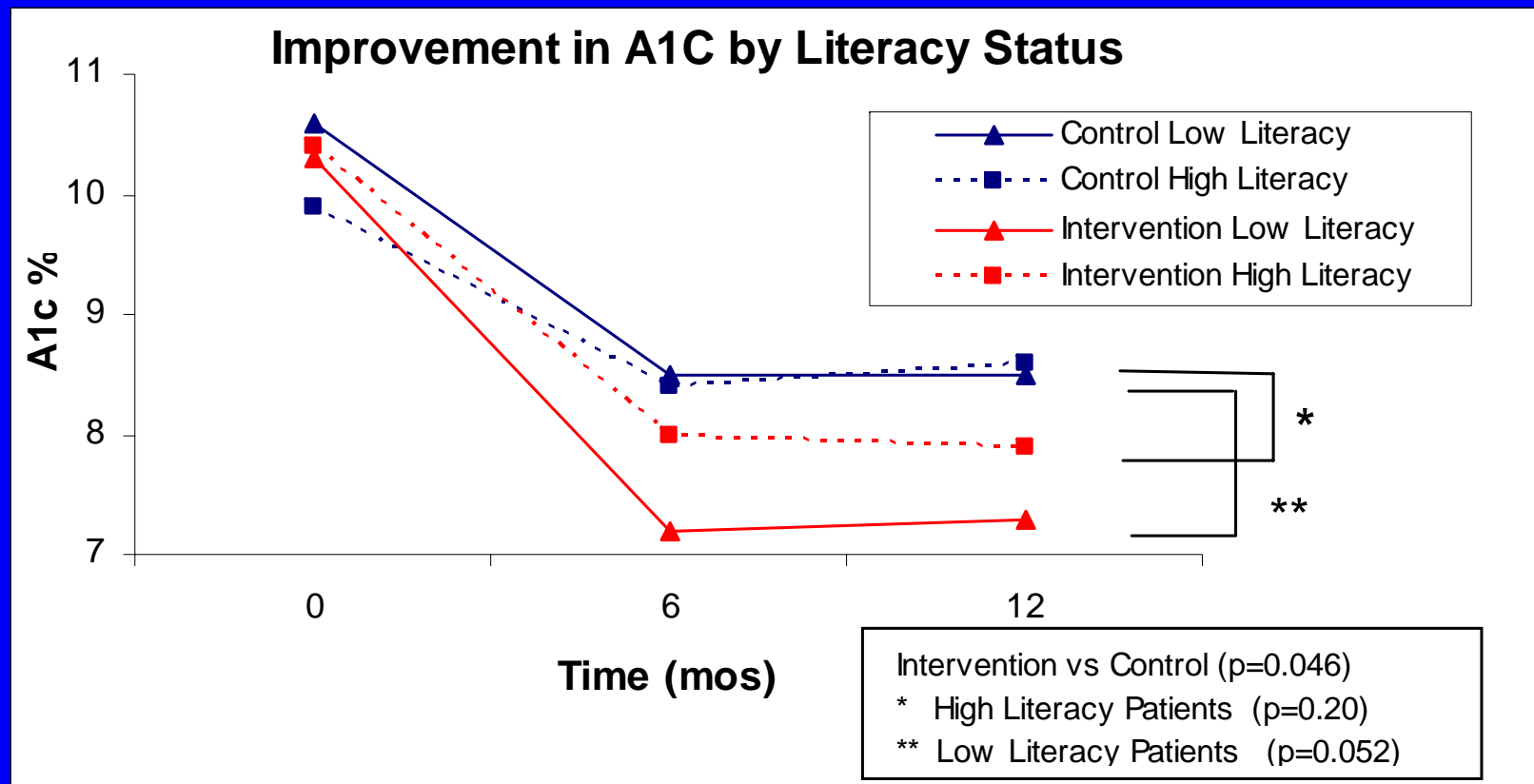
Rothman, Malone, Bryant et al. *Am J Med.* 2005;118:276-284.

Diabetes Control: Results for Patients with Literacy at or Below 6th Grade Level



Rothman, DeWalt, Malone, et al. *JAMA*. 2004;292(14):1711-1716.

Diabetes Control: Stratified by Literacy Status

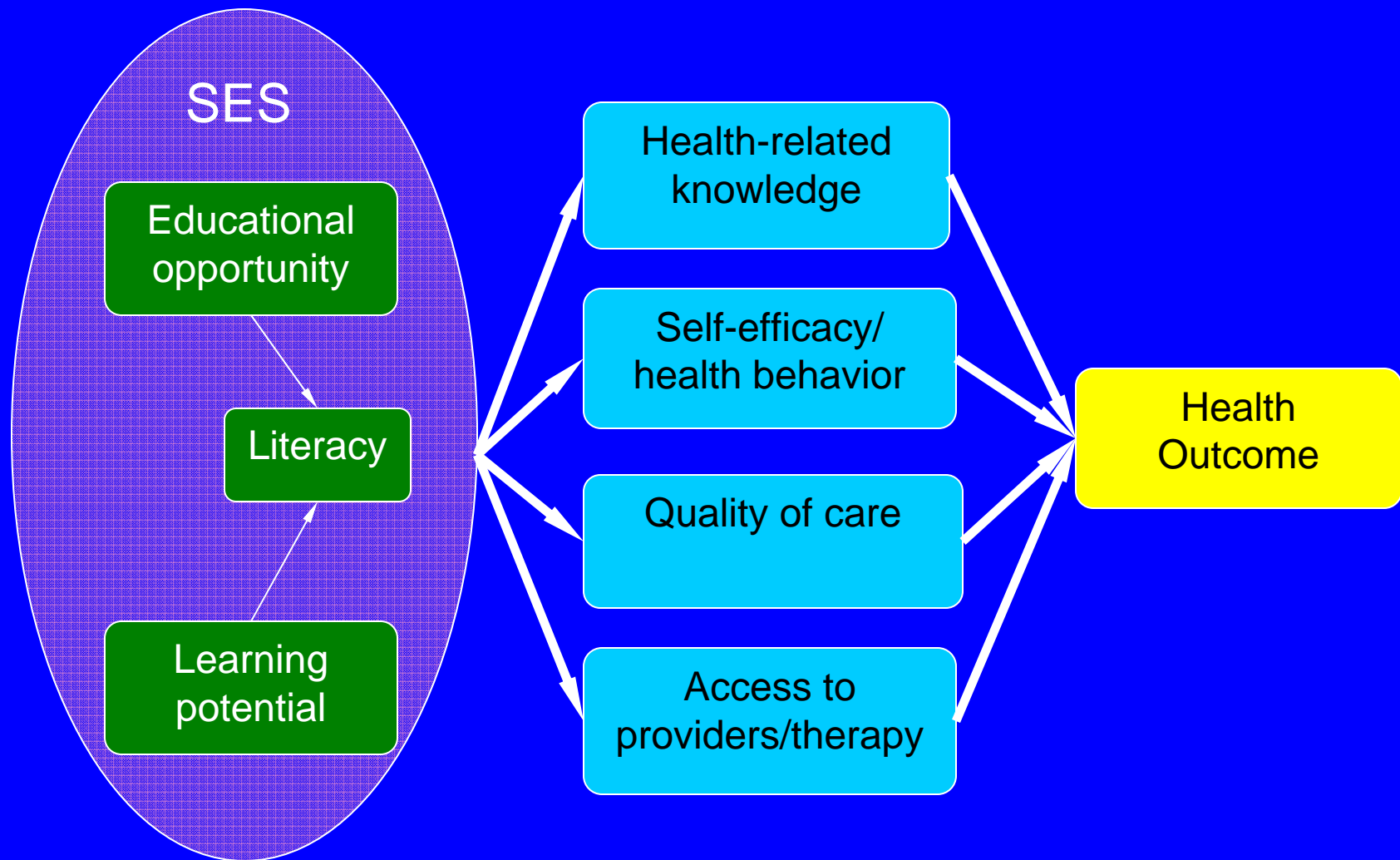


Rothman, DeWalt, Malone, et al. *JAMA*. 2004;292(14):1711-1716.

Lessons Learned

- Easy-to-read materials necessary but not sufficient
- Activated patient seems important
- Frequent reinforcement and encouragement necessary

Why Would Planned Care Work?



Summary 1

- Many strategies to make written materials better—these strategies work and should be employed for ALL materials
- Also need to analyze tasks involved in self-management and clearly organize them

Summary 2

- Written educational strategies alone probably not enough
- Need to integrate better health communication strategies into all interactions
- Teach-back method

Summary 3

- Improved written and verbal communication strategies not enough
- Need to integrate best communication practices into planned care systems to gain full benefit